Restricted Circulation

This paper is not an official document; it is for information only and reference cannot be made to it in any printed publication without the permission of the author.

Agricultural Memorandum No 462

Expectancy of Heavy Winter Rainfall - SOUTHEAST ENGLAND

L P Smith

Long-term records of 51 rainfall stations in SE England were examined to determine the probable heaviest falls in 1 year, 2 years and 10 years over 1 and 5 days. (Rainfall in millimetres). Period - November to April.

Results

County	No of Stations	Mean Annual Rainfall	Heaviest 1 day falls in 1 year	2 years	10 years	Heaviest 5 day falls in 1 year	2 years	10 years
E Surrey & Middlesex	9	686	20.0	23.8	30.2	40.4	47.8	61.7
W Surrey	10	777	23.5	27.9	36.7	47.6	58.3	75.0
E Sussex	6	758	23.1	28.5	33.3	51.6	61.0	73.4
W Sussex	7	806	25.0	30.1	38.3	53.9	62.9	79.4
E Kent	7	700	21.7	26.6	35.3	44.9	53.1	67.7
W Kent	12	746	23.1	27.1	34.6	47.7	55.3	70.7
Berkshire	7	663	19.7	23.3	31.0	39.9	46.4	61.4
E Hants	8	794	24.1	28.5	36.6	50.6	58.6	74.7
W Hants & I of W	7	810	25.6	30.0	37.0	53.9	63.1	79.0

Considering these counties as a fairly homogeneous group and reanalysing:

Rainfall Range	No of Stations	Mean Annual Rainfall	Heaviest 1 day falls in 1 year	2 years	10 years	Heaviest 5 day falls in 1 year	2 years	10 years
Below 600	2	555	17.5	21.5	28.5	36.5	42.0	53.5
600-650	9	620	18.3	21.8	28.9	36.1	42.9	56.7
650-700	17	676	20.5	24.1	32.4	41.4	48.5	62.8
700-750	12	729	22.6	26.8	34.8	47.9	56.3	71.5
750-800	10	775	23.9	28.7	36.7	50.5	59.7	74.7
800-850	11	815	25.4	30.4	38.1	53.3	62.2	79.0
850-900	5	877	26.6	31.8	39.2	56.8	68.0	84.4
over 900	7	954	28.4	33.4	43.4	60.6	71.4	89.6

These results can be smoothed for the area as a whole:

The county corrections can be used for the small regional differences:

Average Annual Rainfall	Heaviest in 1 day			Heaviest in 5 days		
	1 year	2 years	10 years	1 year	2 years	10 years
500	17.0	20.4	27.0	32.0	38.2	50.6
550	17.6	21.2	28.0	34.4	40.8	53.5
600	18.3	22.0	29.1	36.8	43.4	56.4
650	19.8	23.7	31.1	40.4	47.7	61.4
700	21.3	25.5	33.1	44.0	51.9	66.4
750	22.8	27.2	35.1	47.6	56.2	71.4
800	24.3	29.0	37.1	51.2	60.4	76.4
850	25.8	30.7	39.1	54.8	64.7	81.4
900	27.3	32.5	41.1	58.4	68.9	86.4
950	28.8	34.2	43.1	62.0	73.2	91.4
1000	30.3	36.0	45.1	65.6	77.4	96.4
County Corrections						
E Surrey	-0.9	-1.2	-2.4	-2.5	-2.9	-3.3
W Surrey	-0.2	-0.2	-0.5	-1.9	-0.2	+0.9
E Sussex	0.0	+1.0	-2.1	+3.5	+4.2	+1.2
W Sussex	+0.5	+0.9	+0.9	+2.3	+2.0	+2.4
E Kent	+0.4	+1.1	+2.2	+1.0	+1.2	+1.3
W Kent	+0.4	0	-0.4	+0.4	-0.5	-0.3
Berkshire	-0.5	-0.9	-0.7	-1.4	-2.4	-1.3
E Hampshire	-0.1	-0.2	-0.3	-0.1	-1.3	-1.1
W Hampshire & I of W	+1.0	+0.7	-0.5	+2.0	+1.8	+1.6

The accuracy of these corrections is limited by the number of stations per county.

Any comments or suggestions on this paper should be referred to the author.

Meteorological Office
Bracknell